CLAIMS

1. An isolated polynucleotide being selected from the group consisting of:

a. a polynucleotide encoding a BMP-2 inducible kinase polypeptide comprising an amino acid sequence selected form the group consisting of:

i. amino acid sequences which are at least about 72% identical to the amino acid sequence shown in SEQ ID NO: 2; and

ii. the amino acid sequence shown in SEQ ID NO: 2.

iii. amino acid sequences which are at least about 72% identical to the amino acid sequence shown in SEQ ID NO: 4; and

iv. the amino acid sequence shown in SEQ ID NO: 4.

b. a polynucleotide comprising the sequence of SEQ ID NOS: 1 or 3;

c. a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a BMP-2 inducible kinase polypeptide;

d. a polynucleotide the sequence of which deviates from the polynucleotide sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a BMP-2 inducible kinase polypeptide; and

e. a polynucleotide which represents a fragment, derivative or allelic variation of a polynucleotide sequence specified in (a) to (d) and encodes a BMP-2 inducible kinase polypeptide.

2. An expression vector containing any polynucleotide of claim 1.

3. A host cell containing the expression vector of claim 2.

4. A substantially purified BMP-2 inducible kinase polypeptide encoded by a polynucleotide of claim 1.

5. A method for producing a BMP-2 inducible kinase polypeptide, wherein the method comprises the following steps:

a. culturing the host cell of claim 3 under conditions suitable for the expression of the BMP-2 inducible kinase polypeptide; and

b. recovering the BMP-2 inducible kinase polypeptide from the host cell culture.

6. A method for detection of a polynucleotide encoding a BMP-2 inducible kinase polypeptide in a biological sample comprising the following steps:

a. hybridizing any polynucleotide of claim 1 to a nucleic acid material of a biological sample, thereby forming a hybridization complex; and

b. detecting said hybridization complex.

7. The method of claim 6, wherein before hybridization, the nucleic acid material of the biological sample is amplified.

8. A method for the detection of a polynucleotide of claim 1 or a BMP-2 inducible kinase polypeptide of claim 4 comprising the steps of:

a. contacting a biological sample with a reagent which specifically interacts with the polynucleotide or the BMP-2 inducible kinase polypeptide and

b. detecting the interaction

9. A diagnostic kit for conducting the method of any one of claims 6 to 8.

10. A method of screening for agents which decrease the activity of a BMP-2 inducible kinase, comprising the steps of:

a. contacting a test compound with any BMP-2 inducible kinase polypeptide encoded by any polynucleotide of claim1;

b. detecting binding of the test compound to the BMP-2 inducible kinase polypeptide, wherein a test compound which binds to the polypeptide is identified as a potential therapeutic agent for decreasing the activity of a BMP-2 inducible kinase.

11. A method of screening for agents which regulate the activity of a BMP-2 inducible kinase, comprising the steps of:

a. contacting a test compound with a BMP-2 inducible kinase polypeptide encoded by any polynucleotide of claim 1; and

b. detecting a BMP-2 inducible kinase activity of the polypeptide, wherein a test compound which increases the BMP-2 inducible kinase activity is identified as a potential therapeutic agent for increasing the activity of the BMP-2 inducible kinase, and wherein a test compound which decreases the BMP-2 inducible kinase activity of the poly-

peptide is identified as a potential therapeutic agent for decreasing the activity of the BMP-2 inducible kinase.

12. A method of screening for agents which decrease the activity of a BMP-2 inducible kinase, comprising the step of:

contacting a test compound with any polynucleotide of claim 1 and detecting binding of the test compound to the polynucleotide, wherein a test compound which binds to the polynucleotide is identified as a potential therapeutic agent for decreasing the activity of BMP-2 inducible kinase.

13. A method of reducing the activity of BMP-2 inducible kinase, comprising the step of:

contacting a cell with a reagent which specifically binds to any polynucleotide of claim 1 or any BMP-2 inducible kinase polypeptide of claim 4, whereby the activity of BMP-2 inducible kinase is reduced.

14. A reagent that modulates the activity of a BMP-2 inducible kinase polypeptide or a polynucleotide wherein said reagent is identified by the method of any of the claim 10 to 12.

15. A pharmaceutical composition, comprising:

the expression vector of claim 2 or the reagent of claim 14 and a pharmaceutically acceptable carrier.

16. Use of the expression vector of claim 2 or the reagent of claim 14 in the preparation of a medicament for modulating the activity of a BMP-2 inducible kinase in a disease.

17. Use of claim 16 wherein the disease is cancer, diabetes, a CNS disorder, COPD, a gastrointestinal disorder or a cardiovascular disorder.